UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,571	01/30/2004	Thomas R. Apel	008.P001	8895

7590 12/11/2008

Joseph Pugh
2300 NE Brookwood Parkway
Hillsoboro, OR 97124

EXAMINER	
WARREN, MATTHEW E	

ART UNIT	PAPER NUMBER
2815	

MAIL DATE	DELIVERY MODE
12/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/769,571	APEL ET AL.	
	Examiner	Art Unit	
	MATTHEW E. WARREN	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the RCE and Amendment filed on November 10, 2008.

Drawings

The drawings are objected to because figure 5 is not consistent with the specification. The figure numbers recited in the paragraph on page 12 are confusing when compared with the drawings. For instance, the final sentence of the paragraph states that the reference numbers 575, 576, 585, 586, 591, 593, 595 and 597 are part of the perimeter of the base region. However, drawing figure 5 clearly shows that those reference numbers point to portions of what appears to be the emitter contact. Furthermore, the legend on the right of the drawing shows that the shaded area which includes the reference numbers in question, also denotes portions of the emitter contact. For this reason, the specification is confusing as it relates to the drawings. Either the drawings are incorrect or the specification is incorrect. Appropriate correction is required.

Corrected drawing sheets (or corrections to the specification) in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be

removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Page 12 (beginning at line 10) of the specification contains errors. Figure numbers recited in that paragraph are confusing when compared with the drawings. For instance, the final sentence of the paragraph states that the reference numbers 575, 576, 585, 586, 591, 593, 595 and 597 are part of the perimeter of the base region. However, drawing figure 5 clearly shows that those reference numbers point to portions of what appears to be the emitter contact. Furthermore, the legend on the right of the drawing shows that the shaded area which includes the reference numbers in question, also denotes portions of the emitter contact. For this reason, the specification is confusing as it relates to the drawings. Either the drawings are incorrect or the specification is incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended claims recite the limitation of an outer periphery of the emitter region occupies a perimeter of a base mesa region. This limitation is not supported by the specification and therefore will be ignored. The applicant argues that the limitations can be found in paragraph [0033], however, the specification of record does not have paragraph citations. However, it is assumed that the applicant is referring to the specification at page 12 beginning at line 10. The limitations in question are recited on page 12, but the figure numbers recited in that paragraph are confusing when compared with the drawings. For instance, the final sentence of the paragraph states that the reference numbers 575, 576, 585, 586, 591, 593, 595 and 597 are part of the perimeter of the base region. However, drawing figure 5 clearly shows that those reference numbers point to portions of what appears to be the emitter contact. Furthermore, the legend on the right of the drawing shows that the shaded area which includes the reference numbers in question, also denotes portions of the emitter contact. For this reason, the specification is confusing as it relates to the

drawings. Either the drawings are incorrect or the specification is incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 5,266,819) in view of Chau et al. (US 5,512,496).

In re claim 1, Chang et al. shows (figs. 7 and 8) an alternate embodiment for an integrated circuit comprising: a bipolar junction transistor in which a base contact region (61") forms a fishbone configuration and an inner periphery of an emitter region (61') is adjacent to the periphery of the fishbone configuration (since the emitter itself is adjacent the fishbone). Chang shows all of the elements of the claims except the fishbone configuration having a spine and at least one finger that extends from one side and at least one finger that extends from a second side of the spine. Chau et al. shows (fig. 12A) a bipolar transistor having a base contact region (transmission line 1208) having a fishbone configuration wherein the spine of the fishbone has a base finger (1212) that extends from one side and at least one base finger (1212) that extends from a second side of the spine. With this configuration a high power multiple finger transistor is formed that eliminates the requirement for airbridges that add process difficulty and

cost (col. 8, lines 1-12). Furthermore, the emitter (1206) has an inner periphery that is adjacent the fishbone configuration since the emitter is under the fishbone. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the base contact region of Chang by forming the base fingers on both sides of the spine as taught by Chau to form a high power transistor that eliminates the requirement for airbridges that add process difficulty and cost.

In re claim 2, Chang shows (figs. 8) that an emitter contact region (E) has an isomorphic shape with respect to the emitter region and is in direct physical contact with the top surface of the emitter region. The contact (E) has the same rectangular shape as the emitter region portion below it and is therefore isomorphic.

In re claims 3 and 4, Chang discloses (col. 4, lines 65-67) that the contact regions comprise conductive material such as metal.

In re claims 5, 6, and 12, Chang discloses (col. 5, lines 67) that the transistor comprises AlGaAs and GaAs and may be a heterojunction bipolar transistor.

In re claim 7, Chang shows (fig. 7) that the base region contacting tab is embedded within an extension (portion marked B) from a spine of the fishbone configuration.

In re claims 8-11, pertaining to the types of devices that the bipolar transistor is employed in, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F. 2d 1647 (1987). Furthermore, amplifiers and cell phones are

merely known devices which may employ a bipolar transistor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bipolar transistor of Chang by using it in a power amplifier and/or cell phone to enable those devices to operate to increase the operating frequency.

In re claims 13 and 14, Chang does not specifically disclose the specific length or width of the extensions or the distance between the base and emitter regions. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the length or width of the fishbone extensions or the distance between the base and emitter regions of the desired parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In re claims 15 and 16, Chau shows (fig. 12A) that the fishbone configuration includes at least six extensions connected to the spine.

Response to Arguments

Applicant's arguments with respect to claims 1-16 have been considered but are not persuasive. See the objections to the specification and the drawings in conjunction with the 35 USC 112 Rejection above.

Applicant's arguments filed with respect to the 35 USC 103 rejection above have been fully considered but they are not persuasive. The applicant primarily argues that the cited references do not show all of the elements of the claims, particularly the limitations concerning the "inner periphery of an emitter region is adjacent to a

periphery of said fishbone configuration, and an outer periphery of the emitter region occupies a perimeter of a base mesa region." The examiner believes that the references still show the limitations in question when combined. Additionally, the limitations in question are broad in the sense that when an emitter region is formed in a device, it generally is adjacent to the periphery of the base region and base contact of the base region. In essence if any emitter is formed on the device it is adjacent to the base. The applicant's claims are not specific enough and do not really denote the how the emitter is formed. The term adjacent is broad. Anything on a semiconductor is "adjacent." Furthermore, the language of the claims is such that it could be interpreted in several ways: the outer periphery of the emitter region may occupy an inner perimeter or an outer perimeter or both areas of the base mesa region.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E. WARREN whose telephone number is (571)272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew E Warren/
Primary Examiner, Art Unit 2815

December 8, 2008